

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
29 September 2005 (29.09.2005)

PCT

(10) International Publication Number  
**WO 2005/091007 A2**

(51) International Patent Classification<sup>7</sup>: **G01R 33/00**

(21) International Application Number: **PCT/EP2005/003084**

(22) International Filing Date: **7 March 2005 (07.03.2005)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:  
200410006174.5 5 March 2004 (05.03.2004) CN

(71) Applicant (*for all designated States except US*):  
**SIEMENS AKTIENGESELLSCHAFT [DE/DE];**  
Wittelsbacherplatz 2, 80333 München (DE).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **CHEN, Jin Jun [CN/CN]; R1-B1, .., Shenzhen Hitech Industry Park, shenzhen 518057 (CN). NI, Cheng [CN/CN]; Flat 401, Block 17, Area 36, 3 Wen Hua Road, Shenzhen, P.R. 518057 (CN). XUE, Ting Qiang [CN/CN]; 17-11A Wei**

Lan Hai An, Hou Hai Ave., Nan Shan District, Shenzhen, P.R. 518054 (CN).

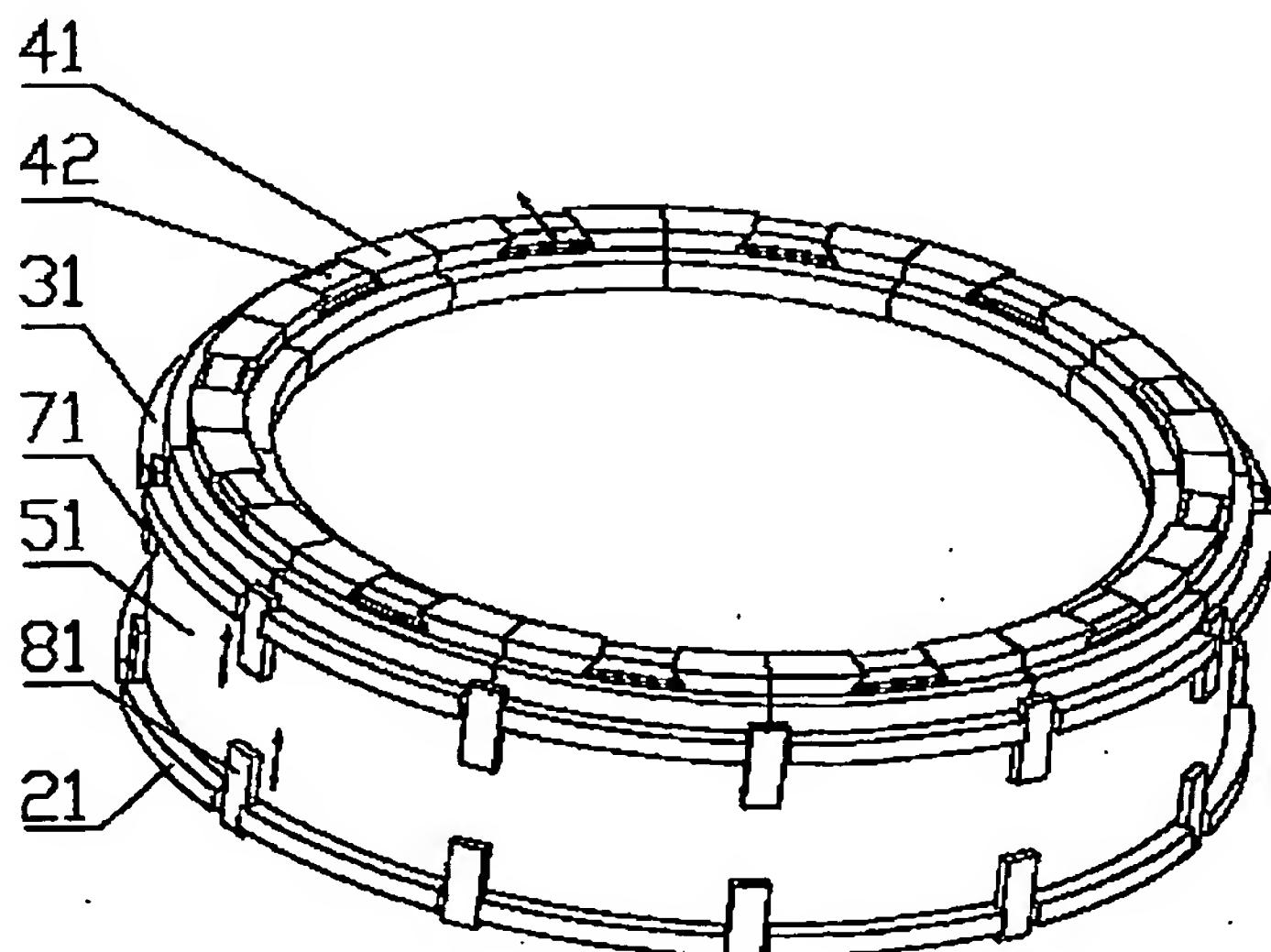
(74) Agents: **FRENCH, Clive Harry et al.; Siemens AG, P O Box 22 16 34, D-80506 Munich (DE).**

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*[Continued on next page]*

(54) Title: MAGNETIC FIELD ADJUSTING DEVICE



WO 2005/091007 A2

(57) Abstract: The present invention relates to a magnetic field adjusting device; such as may be used in MRI apparatus. The device can overcome the magnetic force to enable shimming plugs to move in a controlled continuous manner, thereby achieving continuous adjusting and accurate positioning. The magnetic field adjusting device comprises; a pair of opposing pole plates (3, 31), respectively mounted on magnetic field generating sources, forming a magnetic field space; a plurality of shimming plugs (42) movably mounted at the periphery of said pole plates (3, 31), each shimming plug (42) mounted in a radially oriented retaining groove (45), so as to be moveable in the direction of the retaining groove. Additionally, or alternatively, the circumferences of the magnetic field generating sources (5, 51) are arranged with adjusting bars (71, 81) which can move perpendicular to the pole plates. As an advantage of the present invention, the magnetic field can be shimmed conveniently quickly, and accurately to improve the imaging quality.

**Declaration under Rule 4.17:**

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT,*

*BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

**Published:**

- *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*